

**ABSTRACT OF THE DISCLOSURE**

The invention discloses an apparatus and a method for determining the volume of individual red blood cells or other particles that are suspended in liquids. The sample is disposed into an optical cuvette suitable for microscopic analysis. An absorbing dye is added that does not leak into the cells, and that is able to absorb light at wavelengths that are only weakly absorbed by the cells. The cell volume is determined using transmitted light intensity values measured (i) in a first area comprising a single cell, (ii) in a second area close to that cell, and (iii) in said second area, after changing the cuvette thickness by a known amount.